

CLAIMS

What is claimed is:

1. A post-application expanding cosmetically acceptable composition for application to hair
5 fibers of the scalp, eyebrows or eyelashes comprising at least one surfactant, a solvent for the
surfactant, a volatile agent in an amount effective to cause the surfactant and solvent to interact
and produce a foam on the hair fibers and thereby produce an expanded composition, and a film-
forming agent, the film-forming agent being present in an amount effective to form a film after
10 application of the composition to the hair fibers and, when the film sets, to fix at least a portion
of the expanded composition, the volatile agent being solubilized in the composition, and the
volatile agent further being dispersed throughout the composition in nanometer sized droplets or
generated in situ on the hair fibers or immediately prior to application to the hair fibers, whereby
the composition is storable in a non-pressurized container.
- 15 2. A post-application expanding cosmetically acceptable composition for application to hair
fibers of the scalp, eyebrows or eyelashes comprising at least one surfactant, a solvent for the
surfactant, a volatile agent in an amount effective to swell the composition after application to
the hair fibers, and a film-forming agent, the film-forming agent being present in an amount
20 effective to form a film and, when the film sets, to fix at least a portion of the swelled
composition in an expanded state, the volatile agent being solubilized in the composition, and the
volatile agent further being dispersed throughout the composition in nanometer sized droplets or
generated in situ on the hair fibers or immediately prior to application to the hair fibers, whereby
the composition is storable in a non-pressurized container.
- 25 3. The composition of Claim 2, wherein the composition includes about 1 to about 50% by
weight of the film-forming agent, based on the total weight of the composition.
4. The composition of Claim 2, wherein the composition includes about 5 to about 40% by
weight of the film-forming agent, based on the total weight of the composition.

5. The composition of Claim 2, wherein the composition includes about 8 to about 30% by weight of the film-forming agent, based on the total weight of the composition.

6. The composition of Claim 2, wherein the composition includes about 10 to about 25% by weight of the film-forming agent, based on the total weight of the composition.

7. The composition of Claim 2, wherein the film-forming agent is a polymer.

8. The composition of Claim 2, wherein the film-forming agent is a copolymer.

9. The composition of Claim 8, wherein the film-forming agent is selected from the group consisting of an acrylates copolymer, methacrylates copolymer, acrylamides copolymer, and mixtures thereof.

10. The composition of Claim 2, wherein the composition contains a colorant.

11. The composition of Claim 10, wherein the colorant is present in an amount sufficient to impart to the hair fibers a color other than white.

12. The composition of Claim 10, wherein the colorant is a pigment.

13. The composition of Claim 12, wherein the pigment is present in an amount such that the composition is suitable as a mascara.

14. The composition of Claim 12 wherein the pigment is a pigment dispersion.

15. The composition of Claim 14, wherein the pigment dispersion comprises water, an iron oxide and a second film forming agent.

16. The composition of Claim 2, wherein the composition contains a water-soluble viscosity increasing agent.

17. The composition of Claim 16, wherein the water-soluble viscosity increasing agent is selected from the group consisting of synthetic sucrose derivatives, cellulose gums and hydrophilic colloids.

5 18. The composition of Claim 2, wherein the composition is water-rinseable.

19. The composition of Claim 2, wherein the composition is resistant to water rinsing.

20. The composition of Claim 2, wherein the composition is a microemulsion.

10 21. The composition of Claim 2, wherein the composition contains a block polymer in an amount sufficient to solubilize the volatile agent in the composition.

22. The composition of Claim 2, wherein the composition contains a block polymeric ether
15 selected from the group consisting of MEROXAPOL block polymer surfactants, POLOXAMER block polymer surfactants, and POLOXAMINE block polymer surfactants, and the block polymeric ether is present in an amount sufficient to solubilize the volatile agent in the composition.

20 23. The composition of Claim 2, wherein the composition contains an anionic surfactant.

24. The composition of Claim 23, wherein the anionic surfactant is selected from the group consisting of water-soluble salts of C₁₀ to C₂₂ fatty acids, alkyl sulfates, alkyl ether sulfates, alkyl monoglyceryl ether sulfates, alkyl monoglyceride sulfates, alkyl monoglyceride sulfonates, alkyl
25 sulfonates, alkylaryl sulfonates, alkyl sulfosuccinates, alkyl ether sulfosuccinates, alkyl sulfosuccinates, alkyl amidosulfosuccinates, alkyl carboxylates, alkyl amidoethercarboxylates, alkyl succinates, fatty acyl sarcosinates, fatty acyl amino acids, fatty acyl taurates, fatty alkyl sulfoacetates, alkyl phosphates, alkyl ether phosphates, and mixtures thereof.

30 25. The composition of Claim 24, wherein the water-soluble salts of C₁₀ to C₂₂ fatty acids are stearic acid, palmitic acid, myristic acid selected from the group consisting of sodium, potassium

and triethanolamine salts of palmitic acid, stearic acid, oleic acid, myristic acid, palm and coconut oil fatty acids, and mixtures thereof.

26. The composition of Claim 2, wherein the composition contains an amphoteric or
5 zwitterionic surfactant.

27. The composition of Claim 26, wherein the amphoteric or zwitterionic surfactant is
selected from the group consisting of amphocarboxylates, alkyl betaines, amidoalkyl betaines,
amidoalkyl sultaines, amphophosphates, phosphobetaines, pyrophosphobetaines, carboxyalkyl
10 alkyl polyamines, alkyl amino monoacetates, alkyl amino diacetates, and mixtures thereof.

28. The composition of Claim 2, wherein the composition contains a nonionic surfactant.

29. The composition of Claim 28, wherein the nonionic surfactant is a polyoxyethylene
15 derivatives of a polyol ester.

30. The composition of Claim 2, wherein the volatile agent has a vapor pressure from about
0.5 Torr to about 30,000 Torr, at a temperature of about 0° to about 100°C.

20 31. The composition of Claim 30, wherein the vapor pressure is from about 5.0 Torr to about
5,000 Torr.

32. The composition of Claim 30, wherein the vapor pressure is from about 100 Torr to about
2,500 Torr.

25 33. The composition of Claim 2, wherein the volatile agent is selected from the group
consisting of n-pentane, isopentane, neopentane, n-butane, isobutane, isobutene, cyclopentane,
hexane, trichlorotrifluoroethane, 1,2-dichloro,1,1,2,2-tetrafluoroethane, hydrofluoroethers and
mixtures thereof.

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34. A method for imparting a volumizing effect to hair of the scalp, eyebrows or eyelashes comprising the step of contacting the hair with the composition of Claim 2 for a time sufficient to obtain said effect.

5 35. A post-expanding composition comprising a film-forming agent, a surfactant, a solvent for the surfactant, and a volatile agent, wherein the film-forming agent is present in an amount effective to form a film that entraps at least a portion of foam formed by interaction of the volatile agent and the surfactant after the composition is applied to a hair fiber, the volatile agent being solubilized in the composition, and the volatile agent further being dispersed throughout
10 the composition in nanometer sized droplets or generated in situ on the hair fiber or immediately prior to application to the hair fibers, whereby the composition is storable in a non-pressurized container.

36. The composition of Claim 35, wherein the volatile agent has a vapor pressure from about
15 0.5 Torr to about 30,000 Torr, at a temperature of about 0° to about 100°C.

37. The composition of Claim 36, wherein the vapor pressure is from about 5.0 Torr to about 5,000 Torr.

20 38. The composition of Claim 36, wherein the vapor pressure is from about 100 Torr to about 2,500 Torr.

39. The composition of Claim 35, wherein the volatile agent is selected from the group consisting of n-pentane, isopentane, neopentane, n-butane, isobutane, isobutene, cyclopentane,
25 hexane, trichlorotrifluoroethane, 1,2-dichloro, 1,1,2,2-tetrafluoroethane, hydrofluoroethers and mixtures thereof.

40. The composition of Claim 35, wherein the hair fiber is an eyelash.

41. The composition of Claim 40, wherein the composition contains a colorant in an amount sufficient to mask color that would otherwise be imparted to the eyelash in the absence of the colorant.

5 42. The composition of Claim 41, wherein the colorant is a pigment and is present in an amount sufficient to impart to the eyelash a color approximating that of the pigment.

10 43. In a mascara composition, the improvement comprising including in the composition (i) at least one surfactant, (ii) a solvent for the surfactant, (iii) a volatile agent that will interact with the surfactant and the solvent to cause the mascara composition to expand after the composition is applied to eyelashes, (iv) a film-forming agent in an amount effective to form a film that entraps at least a portion of the expanded composition and when set maintains at least a portion of the composition in an expanded state, and (v) the volatile agent being solubilized in the composition, and the volatile agent further being dispersed throughout the composition in
15 nanometer sized droplets or generated in situ on the eyelashes or immediately prior to application to the hair fibers, whereby the composition imparts a volumizing effect to the eyelashes upon which it is applied and wherein the composition is storable in a non-pressurized container.

20 44. A post-application expanding cosmetically acceptable composition for application to hair fibers of the scalp, eyebrows or eyelashes comprising at least one surfactant, a solvent for the surfactant, a volatile agent in an amount effective to cause the surfactant and the solvent to produce a foam on the hair fibers which increases radial configuration of the composition on the hair fibers, and a film-forming agent in an amount effective to fix the increased radial configuration of at least a portion of the composition on the hair fibers, the volatile agent being
25 solubilized in the composition, and the volatile agent further being dispersed throughout the composition in nanometer sized droplets or generated in situ on the hair fibers or immediately prior to application to the hair fibers, whereby the composition is storable in a non-pressurized container.

30 45. The composition of Claim 2, wherein the volatile agent is carbon dioxide generated in situ on the hair fibers by reaction of a carbonate or bicarbonate and an acid, in water.

46. The composition of Claim 45, wherein the carbonate or bicarbonate and the acid are dispersed in a first part comprising an anhydrous water-miscible vehicle and the water is contained in a second part, the first and second parts being mixed on the hair fibers or just prior to being applied to the hair fibers.

47. The composition of Claim 45, wherein the carbonate or bicarbonate is contained in a first part comprising an anhydrous water-miscible vehicle and the water and acid are contained in a second part, the first and second parts being mixed on the hair fibers or immediately prior to being applied to the hair fibers.

48. The composition of Claim 45, wherein the carbonate or bicarbonate is selected from the group consisting of ammonium, alkali metal and alkaline earth metal carbonates and bicarbonates, diethyl carbonate, propylene carbonate, dipropyl carbonate, and mixture thereof; and the acid is selected from the group consisting of citric acid, boric acid, tartaric acid, succinic acid, malic acid, formic acid, glycolic acid, polyacrylic acid, polyaspartic acid, microporous silica, buffered mineral acids having a pH of 5 or less, and mixtures thereof.

49. The composition of Claim 46, wherein the acid is citric acid, the base is sodium or potassium bicarbonate, and the anhydrous water-miscible vehicle is anhydrous polyethylene glycol.

50. The composition of Claim 2, wherein the composition contains an effective solubilizing amount of a solubilizing agent for the volatile agent, the solubilizing agent being a block polymer surfactant, polyvinyl alcohol, PEG-800/polyvinyl alcohol copolymer, sodium MA/vinyl alcohol copolymer, acetylated polyvinyl alcohol, vinylamine/vinyl alcohol copolymer, VP/VA copolymer, polyvinyl acetate, polyvinylacetal diethylamino acetate, or a mixture thereof.

51. The composition of Claim 50, wherein the solubilizing agent is a block polymer surfactant, polyvinyl alcohol, PEG-800/polyvinyl alcohol copolymer, sodium MA/vinyl alcohol

copolymer, acetylated polyvinyl alcohol, vinylamine/vinyl alcohol copolymer, VP/VA copolymer, or a mixture thereof.

52. The composition of Claim 50, wherein the solubilizing agent is selected from the group
5 consisting of a block polymer surfactant, polyvinyl alcohol, and a mixture thereof.

53. The composition of Claim 50, wherein the solubilizing agent is a block copolymer surfactant selected from the group consisting of MEROXAPOL block polymer surfactants, POLOXAMER block polymer surfactants, POLOXAMINE block polymer surfactants, and
10 mixtures thereof.

54. The composition of Claim 50, wherein the solubilizing agent is polyvinyl alcohol and the amount of polyvinyl alcohol is also effective to form a film which when it sets fixes at least a portion of the swelled composition in an expanded state, so that the polyvinyl alcohol serves as a
15 solubilizing agent and as a film-forming agent.

55. The composition of Claim 2, further including a conditioning amount of an emollient agent selected from the group consisting of ethylhexyl hydroxystearate, ethylhexyl stearate, butylene glycol stearate, C₁₂₋₁₅ alkyl benzoate, C₁₂₋₁₃ alkyl lactate, caprylic/capric glycerides, castor/olive oil esters, cetearyl ethylhexanoate, cetyl oleate, cocoglycerides, cyclomethicone, cyclopentasiloxane, dimethiconol, dimethicone PEG-7 isostearate, ethylhexyl isostearate, ethylhexyloxyglyceryl palmitate, ethylhexyl palmitate, glyceryl palmitate, hydrogenated polydecene, hydrogenated polyisobutene, isodecyl stearate, isopropyl palmitate, lanolin, mineral oil, PEG-11 cocoa butter glycerides, and mixtures thereof.

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56. The composition of Claim 53, further including an ammonium cocoyl isethionate.

57. The composition of Claim 56, wherein the ammonium cocoyl isethionate is selected from the group consisting of sodium cocoyl isethionate, ammonium cocoyl isethionate and a mixture
30 thereof.

58. The composition of Claim 52, wherein the solubilizing agent is a mixture of (i) a block polymer surfactant selected from the group consisting of MEROXAPOL block polymer surfactants, POLOXAMER block polymer surfactants, and POLOXAMINE block polymer surfactants, (ii) polyvinyl alcohol and (iii) an ammonium cocoyl isethionate.

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59. The composition of Claim 2, wherein the composition is a microemulsion containing the volatile agent dispersed therein in nanometer sized droplets.

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